

SITE NUMBER AND NAME: GP039-1 South of LaGlance Erosion Sites		HIGHWAY & KM: 724:04, 21.191	PREVIOUS INSPECTION DATE: June 9, 2016	INSPECTION DATE: July 20, 2021
LEGAL DESCRIPTION: SE 33-73-08-W6M	NAD 83 COORDINATES: UTM Northing Easting 11 6137021 363442		RISK ASSESSMENT: GP039-I PF: 13 CF: 2 TOTAL: 26 GP039-II PF: 10 CF: 3 TOTAL: 30	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 950 (north) & 1280 (south) (Reference No. 27750)			CONTRACT MAINTENANCE AREA (CMA): 504	

SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at the GP039 site LAST READING DATE: N/A	INSPECTED BY: Chris Gräpel James Lyons Roger Skirrow (AT) Rocky Wang (AT) Ed Szmata (AT) Max Shannon (AT) Jesse Kasouf (AT MCI)
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PRIMARY SITE ISSUE: GP039-I: An erosion gully has formed at the crest of the Fish Creek north valley slope along the SBL ditch and is retrogressing into the limits of the privately owned land at No.730028 Hwy 724:04. Minor erosion has occurred at the outlets of twin CSP culverts below a private driveway and in two locations in the ditch bottom between the approach and crest of the creek valley. GP039-II: an erosion gully has formed in the ditch north of the bridge. Some erosion during a highwater event occurred near the double timber bridge headwalls. The erosion gully is not affecting the approach fill or head wall(s). APPROXIMATE DIMENSIONS: The erosion gully is about 10 m long, approximately 10 m wide crest-to-crest, approximately 2 to 2.5 m deep, v-shaped to approximately 0.5 m wide at the base, with 0.5 to 1H:1V side slopes. Base of gully is sloped at approximately 20%. DATE OF ANY REMEDIAL ACTION: None. Ditch was re-routed in 2012/2013 from its former location further upslope to its current location

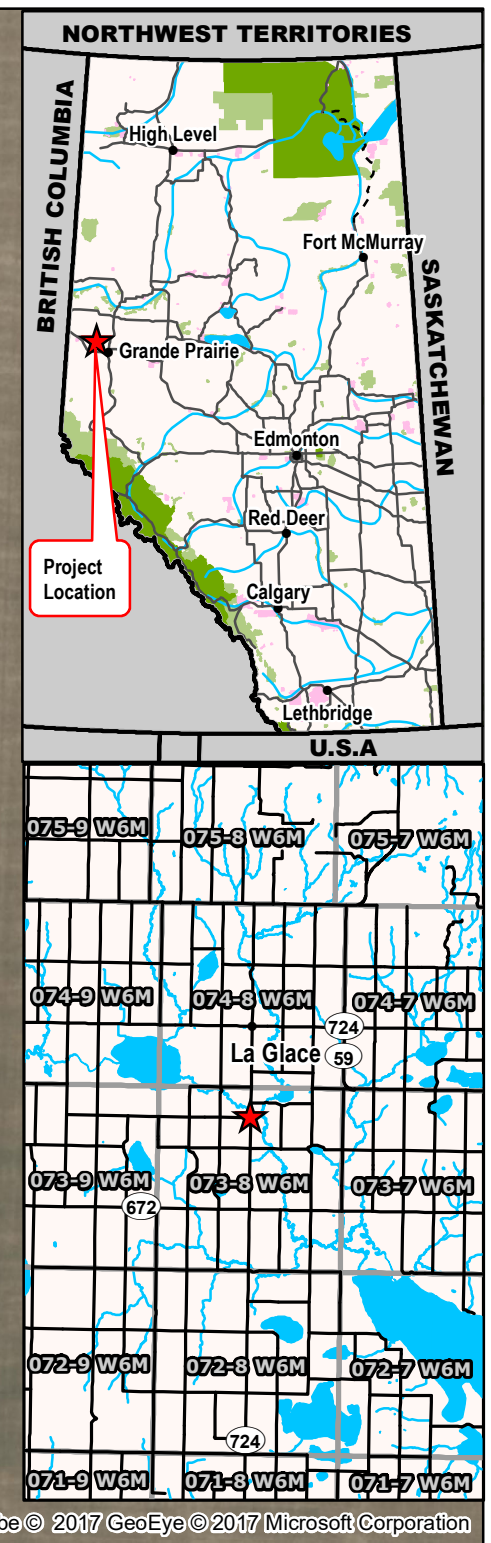
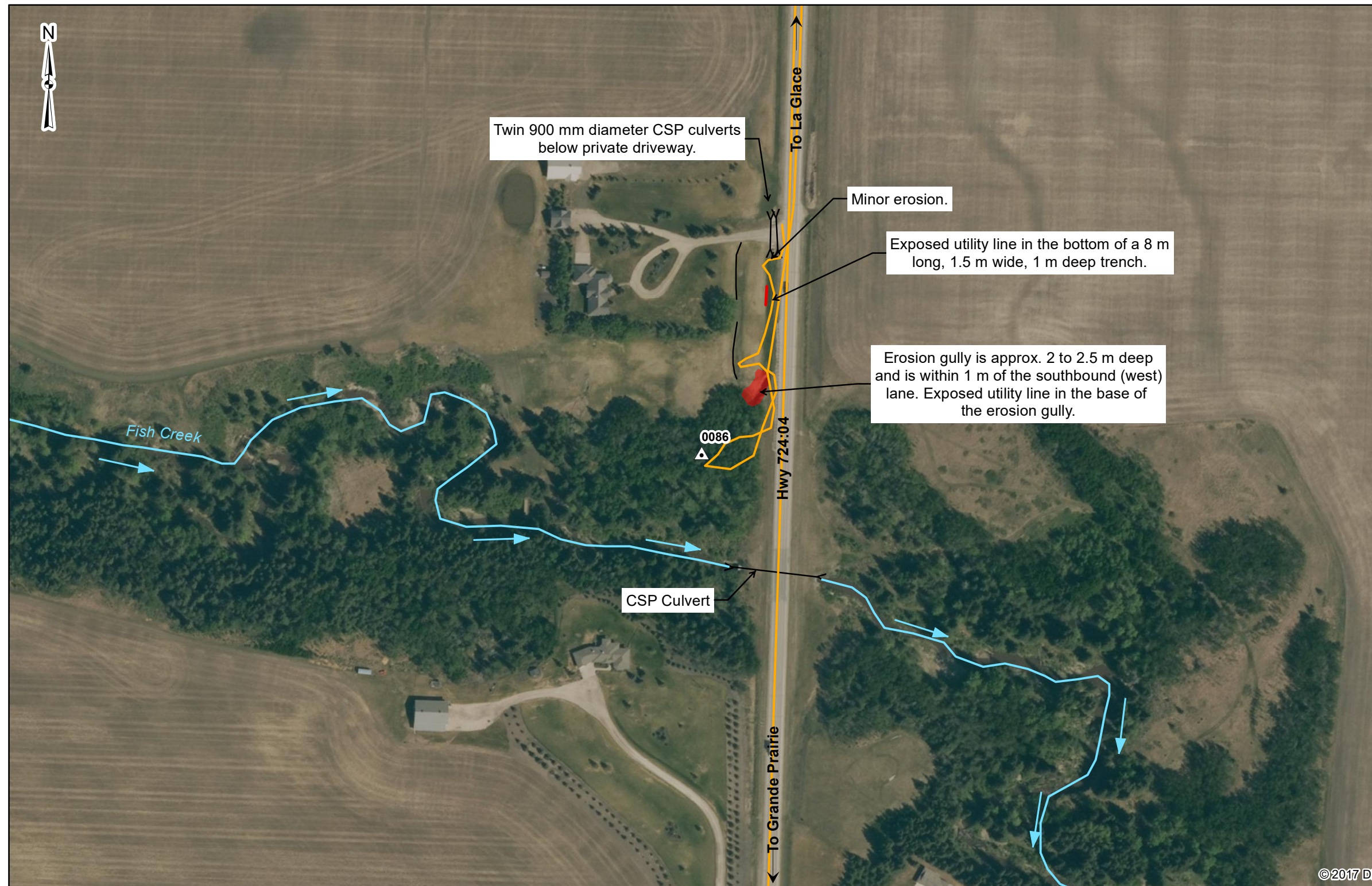
ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X			
Slope Movement		X			
Erosion	X		Large erosion gully at south extent of the site, approx. 2 m from edge of pavement of southbound lane. Two black utility lines and one larger-diameter orange line visible in erosion gully. AT last looked at this site in 2016 and the erosion has gotten much worse.	X	
Seepage	X		Landowner says that after heavy rain or runoff, water is seen seeping out into the gully along the orange jacket buried utility line.		X
Culvert Distress					

COMMENTS
<u>GP039-I (ditch erosion at Colquhoun Creek)</u>
<ul style="list-style-type: none"> - There is large catchment draining to the erosion gully with a gently sloped ditch extending to the north.
<ul style="list-style-type: none"> - Twin 0.9 m diameter CSP culverts under driveway
<ul style="list-style-type: none"> - Erosion at base of ditch in two locations exposes an orange jacket utility line.
<ul style="list-style-type: none"> - Edge of erosion scarp is approximately 1.5 m from guardrail posts. Guardrail protects road users from hazard of erosion in ditch.
<ul style="list-style-type: none"> - Landowner is mowing grass in ditch, ditch is very well maintained
<ul style="list-style-type: none"> - Valley bottom downslope of gully has a deposit of eroded material in a channel that drains towards Fish Creek (WP0086). Channel is 4 m wide with 1:1 slide slopes approximately 3 m high that are failing. However, the valley bottom is has irregular topography and various fallen trees and pockets of understory vegetation between the erosion and the creek (approximately 30 to 50 m) that appears to impede the transport of eroded material towards the creek.
<ul style="list-style-type: none"> - Possible solutions include: Fill gully with clean gravel and riprap armour the reconstructed ditch bottom, extend a riprap pad a few meters into the trees to transition to the valley bottom (might have to cut down a few poplars in the fall); or storm drain drop inlet, with a buried pipe discharging into an energy dissipation apron or structure (gabions or pre-cast concrete). The HMC will do the repairs so the riprap armoured channel would be more appropriate. A check trench with compacted clay should be placed around the existing utility cables to limit subsurface seepage along the cable. The cables would need to be relocated before construction starts, and routed to a location where they are not damaged by construction of repairs.
<ul style="list-style-type: none"> - Repairs should limit damage to the vegetation in the ditch, if practical and economic. The use of rig mats for truck access would limit damage. Another alternative would be to take apart of the guardrail and rout trucks right to the erosion gully, with some use of rig mats where safe. A single lane closure would likely be required for any repair option or access configuration.
<ul style="list-style-type: none"> - AT requests proposal for hydrotech study, sketch drawings, quantities, memo to support HMC repair. Repairs should be conducted in the fall of 2021.
<u>GP039-II (bridge abutment erosion)</u>
<ul style="list-style-type: none"> - Gully is about 2 to 2.5 m deep, up to about 4 m wide
<ul style="list-style-type: none"> - Erosion gully is outside of clear zone for most of it, but within 4 m at upper end of erosion
<ul style="list-style-type: none"> - Short-length, small catchment
<ul style="list-style-type: none"> - Minor erosion at edge of bridge wingwall, AT says highwater caused erosion near the toe of the wingwall in the past
<ul style="list-style-type: none"> - South abutment of bridge has double creosote timber headslope walls
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- (ii) The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.
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Chris Gräpel, M.Eng., P.Eng.
Civil Engineer, Associate

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- Legend**
- ▲ GPS Waypoint (July 20, 2021)
 - Previous Ditch
 - GPS Track (July 20, 2021)
 - >< Culvert
 - Watercourse
 - Erosion
 - Flow Direction

NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM Zone 11N
 3. IMAGE SOURCE: ESRI Basemaps

CLIENT

Alberta

Klohn Crippen Berger

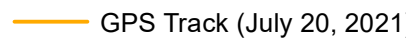


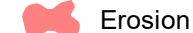

PROJECT	GRANDE PRAIRIE SOUTH REGION GEOHAZARD RISK MANAGEMENT PROGRAM	
TITLE	Site Plan GP039-I South of La Glace Erosion Sites Hwy 724:04, km 13.349	
SCALE	PROJECT No. A05116A01	FIG No. 1

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Legend

-  GPS Track (July 20, 2021)
-  Flow Direction
-  Watercourse
-  Erosion
-  Asphalt Patch



NOTES: 1. HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM Zone 11N 3. IMAGE SOURCE: Microsoft BING Map	CLIENT 	PROJECT GRANDE PRAIRIE SOUTH REGION GEOHAZARD RISK MANAGEMENT PROGRAM
		TITLE Site Plan GP039-II South of La Glace Erosion Site Hwy 724:04, km 21.191
SCALE 1:1,000	PROJECT No. A05116A01	FIG No. 2

GP039-I South of La Glace Erosion Sites

Photo 1 Inlet of the twin 800 mm diameter CSP culverts and riprap apron. Photo taken July 20, 2021 facing south.



Photo 2 Outlet of the twin 800 mm diameter CSP culverts. Water has ponded in the riprap apron. Photo taken July 20, 2021 facing north.



Photo 3 Left-over depression from hydro-vacing to expose the underground utility line. The depression is approximately 8 m long, 1 m wide, and 1 m deep. Photo taken July 20, 2021 facing north.



Photo 4 Exposed utility line in the west (southbound) ditch. The utility line is still exposed from hydro-vacing. Photo taken July 20, 2021 facing north.



Photo 5 Erosion gully at the south extent of the site. The erosion gully is much larger than during the 2016 inspection and is approximately 5 m to 6 m deep and 8 m wide. Photo taken July 20, 2021 facing north.



Photo 6 The erosion gully is retrogressing towards the west (southbound) lane and is less than 2 m from the edge of pavement. Photo taken July 20, 2021 facing southeast.



GP039-II South of La Glace Erosion Sites

Photo 7 Erosion gully in the west (southbound) ditch of the S039-II site. Photo taken July 20, 2021 facing north.



Photo 8 Erosion gully viewed from the south abutment of the bridge crossing Colquhoun Creek. Photo taken July 20, 2021 facing southwest.



Photo 9 The silt fencing near the north extent of the erosion gully has been undermined. Photo taken July 21, 2021 facing south.



Photo 10 Erosion at the southwest corner (west side of the south abutment) of the bridge crossing Colquhoun Creek. Photo taken July 20, 2021 facing west,

